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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/589,762	08/17/2006	Jun Yamada	12477/12	2280

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EXAMINER	
NELSON, MICHAEL B	
ART UNIT	PAPER NUMBER
1794	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/589,762	YAMADA ET AL.	
	Examiner	Art Unit	
	MICHAEL B. NELSON	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 May 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,6-12 and 14-19* is/are pending in the application.

4a) Of the above claim(s) *6-8 and 15-17* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 9-12, 14, 18 and 19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 05/15/09 has been entered. Claims 1, 9-12, 14, 18 and 19 are currently under examination on the merits. Claims 6-8, and 15-17 are currently withdrawn for being drawn to non-elected subject matter. Claims 2-5 and 13 are cancelled.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 14 recites a gas permeability range with the gas permeability given in improper units. There is no area dimension in the denominator to specify how big the porous film is which is being measured for gas permeability. The areal size of the membrane would effect how long it would take the air to pass through it (i.e. 1 cc of air spread out over a 1 m^2 membrane would pass through faster than a 1cm^2 sample of membrane).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1, 9-12, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toyobo Co Ltd (JP 07100201), see Schreiber Translation Inc. English Translation (NPL Document U), in view of Deshpande et al. (U.S. 2003/0215644), in view of Konstantin et al. (U.S. 6,186,341).

Regarding claims 1 and 9, Toyobo Co Ltd discloses a porous membrane ([0004]), with a

thickness of between 5 and 100 micrometers ([0013]), and a viscosity of greater than 0.5 dl/g ([0010], L16-19) with instant chemical formula (I) ([0010]) being present at more than 20mol% ([0010], L6). Toyobo Co Ltd is silent as to the glass transition temperature of the polyamideimide resin used in the porous membrane, however, one having ordinary skill in the art would have adjusted, through routine experimentation, the glass transition temperature of the resin in order to optimize the rheological and mechanical properties of the final membrane.

Toyobo Co Ltd is also silent as to amide/imide bond ratio (recited in instant claim 9), however, it was known to those having ordinary skill in the art at the time of the invention that the ratio of amide to imide bonds in a polyamide imide resin affects the moisture stability, cost, dielectric constant and solubility in polar solvents of the final product (See Deshpande et al., [0054], for evidence of controllability of imide/amide ratio, and [0072]-[0073], for the corresponding effects). Hence, one having ordinary skill would have adjusted, through routine experimentation, the amide/imide bond ratio in order to optimize the moisture stability of the final product.

Toyobo Co Ltd does not disclose the inclusion of their porous blood membrane with polyolefin porous layers to form a composite. Konstantin et al. discloses a method of using hydrophilic porous membranes in the biotechnology industry (C1, L5-15) in which the porous membrane, 2, is sandwiched between two porous polyethylene/polypropylene fibrous mats, 1 and 6, (Fig. 13-18 and C7, L65-C8, L10) in order to suitably bond the membrane into its holder apparatus with the conventional hot melt thermoplastic support (C1, L35-50) but without the conventional reduction in hydrophilicity of the core membrane (See Abstact). Hence it would have been obvious to have used the polyamideimide film of Toyobo Co Lt, having its high water

permeability and heat resistance ([0004]), with the porous polyolefin fiber mat layers of Konstantin et al. in order to allow the membrane to be mounted without adversely affecting the water permeability characteristics.

Regarding 10-12, modified Toyobo Co Ltd. discloses all of the limitations as set forth above. Additionally, the reference discloses that the polyamide imide resin comprises an acid component including dimer acid ([0011]) and biphenyltetracarboxylic acid anhydride ([0006]).

Regarding claims 18 and 19, modified Toyobo Co Ltd. discloses all of the limitations as set forth above. Additionally, Toyobo Co Ltd. discloses that diisocyanate (which is a diamine according to the instant specification on page 7 lines 18-27) can be used in the composition ([0007] and [0011]).

8. Claims 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Toyobo Co Ltd (JP 07100201), see Schreiber Translation Inc. English Translation (NPL Document U), in view of Deshpande et al. (U.S. 2003/0215644), in view of Konstantin et al. (U.S. 6,186,341) as applied to claim 9 above, and further in view of Peterson (U.S. 4,210,529).

Regarding claim 14, modified Toyobo Co Ltd discloses all of the limitations as set forth above. Modified Toyobo Co Ltd does not explicitly disclose any particular gas permeability of the membrane however it is believed that given the range of pore sizes and the range of thicknesses of the membrane it will read on the instantly claimed air permeability. Alternatively, it would have been obvious to one having ordinary skill in the art to have adjusted the gas

permeability of the membrane to suit its desired application. For example, Peterson discloses a blood oxygenator application for biologically suitably membranes in which the gas permeability would be optimized (C1, L45-65). Hence one having ordinary skill in the art would have adjusted the gas permeability of the membrane to suit its intended application.

Response to Arguments

9. Applicant's arguments filed on 04/13/09 are considered moot in light of the new grounds of rejection provided above which were necessitated by applicant amendments. Arguments which are still deemed to be relevant are addressed below.

10. Regarding applicant's arguments directed towards the various advantageous properties of the instant film (i.e. (A) through (D), pages 6-9), applicants appear to be asserting unexpected results associated with the claimed evidence. However, attorney agruments cannot take the place of evidence where evidence is necessary. MPEP 2145 I.

11. Applicant also argues against the amide/imide bond ratio as being irrelevant to the previous prior art directed towards battery membranes. While the examiner disagrees that the properties would not be relevant to battery membranes, the new prior art rejections utilized modifications which are directed towards biological membranes and therefore the previous arguments are moot. In general, any combination of two polymers is intended to produce a final product having a degree of the properties of polymer A and a degree of the properties of polymer B. In this situation, it would be obvious to control the precise ratio of the two polymers in order to strike an optimal balance of the properties in the final mixture. Applicant's claims to "unexpectedly superior results" are without any objective evidence.

12. While the examiner does not agree that the previous prior art documents were non-analogous art, the new art of record renders this argument moot.

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL B. NELSON whose telephone number is (571) 270-3877. The examiner can normally be reached on Monday through Thursday 6AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Sample can be reached on (571) 272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David R. Sample/
Supervisory Patent Examiner, Art Unit 1794

/MN/
05/20/09